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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/029,260	12/28/2001	Toshiaki Matsuo	H-874	4318

7590 06/24/2003

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EXAMINER
DRODGE, JOSEPH W

ART UNIT	PAPER NUMBER
1723	4

DATE MAILED: 06/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.	Applicant(s)
10/029,260	MATSUO ET AL
Examiner	**Art Unit**
JOSEPH DRODGE	1723

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *Jun 9, 2003* .

2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *7-13* is/are pending in the application.

4a) Of the above, claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *7-13* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All b) ☐ Some* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____
4) ☐ Interview Summary (PTO-413) Paper No(s). _____
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 U.S.C. § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was

made in order for the examiner to consider the applicability of 35 U.S.C. 103© and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 7-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bradley patent 5,849,201 in view of Brierley et al patent 5,640,703; Pierce et al patent 5,960,368 and DeGuitre et al, of record.

Bradley discloses apparatus to treat toxic organics containing waste such as liquids, water or mixtures thereof (column 6, lines 36-42), that may contain surfactants (column 9, lines 28-29), [claim language "for treating a radioactive liquid waste containing a surface active agent is given limited patentable weight since the phrase does not define any structure or apparatus components]. Also disclosed is a system for first adding hydrogen peroxide to the mixture, followed by a downstream device for heating the mixture and treating it with ozone, the heating being for the purpose of accelerating the catalytic oxidation process occurring (see column 9, lines 55-65 and column 10, lines 4-23). Summarizing text on column 12, lines 15-19 "***oxidizing PAHs, particularly when used in conjunction with surfactants and oxidants , such as hydrogen peroxide and ozone" and column 12, lines 50-52 "The viscosity of the mixture is optimized for interaction of ozone, oxidant*** (i.e. hydrogen peroxide) ***and catalysts with the contaminated material" emphasize that ozone is added to the aqueous mixture when it continues to contain, or contains, hydrogen peroxide.***

The claims differ in requiring a "thermometer" and a control device, so as to responsively control the temperature of such heating device.

Pierce et al teach catalytic oxidation of wastes containing both radioactive material and toxic organics under a controlled application of heat (column 5, lines 33-37 and column 8, line 43-column 9, line 13). Brierley et al teach catalytic oxidation of radioactive material and organics using ozone or hydrogen peroxide , the material containing surfactants as in Bradley et al, while mildly heating while avoiding off-gassing (column 3, lines 14-35 and column 5, lines 5-9 and 48-52, also see column 4, lines 60-62).

Deguitre et al teach explicit control of the heating temperature of a reactor to catalytically oxidize radioactive material to predetermined pressures and temperatures that are monitored by sensors including temperature sensors (i.e. "thermometers"), (see column 2, lines 11-13; column 9, line 52-column 10, line 42 and column 10, lines 49-51).

In summary, it would have been obvious to have supplemented the system of Bradley, by adding a thermometer (temperature sensing device) and control device to more precisely control the temperature of Bradley's disclosed heating device, as taught by Brierley et al, Pierce et al and Deguitre et al, in order to optimize the catalytic oxidation rate of particular organic contaminants within the mixture being treated , while avoiding unnecessary off-gassing of released volatile organics.

Regarding claim 8, a plurality of types of equipment with the inherent property of breaking up gaseous or ozone bubbles is disclosed by Bradley in column 10, lines 52-55.

Regarding claims 9 and 11, see Bradley in column 11, lines 6-16 and Brierley et al in column 3, lines 57-62 concerning addition of alkaline solutions.

Regarding claims 10, 12 and 13, Brierley et al teach means to remove solid components in column 5, lines 20-36.

Response to Arguments

4. Applicant's arguments filed on June 9, 2003 have been fully considered but they are not persuasive. It is argued that neither Bradley or any of the teaching references suggest that the ozone is charged to radioactive liquid waste containing aqueous hydrogen peroxide such that the waste is treated simultaneously with ozone and hydrogen peroxide. However, it is submitted that the text of column 12, lines 15-19 and lines 50-52 clearly emphasize that ozone and oxidant (i.e. hydrogen peroxide) are mixed together and interact with each other in treatment of the waste.

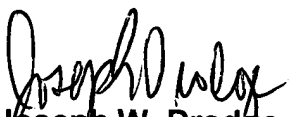
5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph W. Drodge whose telephone number is (703) 308-0403. The examiner can normally be reached on Monday-Friday from approximately 8:30 AM - 4:45 PM.

The fax phone number for this Group is (703) 872-9310 or (703) 872-9311 for after final submissions. When filing a FAX in Tech Center 1700, please indicate in the Header (upper right) "Official" for papers that are to be entered into the file, and "Unofficial" for draft documents and other communication with the PTO that are not for entry into the file of the application. This will expedite processing of your papers.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0661.



Joseph W. Drodge
Primary Examiner
Art Unit 1723

JWD
June 20, 2003